

SAFETEA-LU 6002

Impact Analysis Methodology Document

Zoo Interchange (I-94/I-894/USH 45)/USH 45 Reconstruction
Project
Milwaukee County, WI
WisDOT Project I.D. 1060-33-01



U.S. Department of Transportation
Federal Highway Administration



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Section 1: Introduction

1.1 Purpose of Impact Analysis Methodology Document

Section 6002 of the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users* (SAFETEA-LU 6002) requires lead agencies for proposed federally funded transportation projects to determine the appropriate methodology and level of detail for analyzing impacts, in collaboration with cooperating and participating agencies.¹ Consensus on the methodology² is not required, but the lead agency must consider the views of the cooperating and participating agencies with relevant interests before making a decision on a particular methodology. Well-documented, widely accepted methodologies, such as those for noise impact assessment and evaluation of impacts under Section 106 of the National Historic Preservation Act would require minimal collaboration. If a cooperating or participating agency criticizes the proposed methodology for a particular environmental factor, the agency should describe its preferred methodology and why it is recommended.

The purpose of the impact analysis methodology document is to communicate and document the lead agency's structured approach to analyzing impacts of the proposed transportation project and its alternatives. Collaboration on the impact analysis methodology is intended to promote an efficient and streamlined process and early resolution of concerns or issues.

The methodology discussion for each resource known or believed to be located in the project study area is broken into three parts. Subsection 1 identifies the laws, regulations and guidelines applicable to the particular resource. Subsection 2 discusses the purpose of evaluating potential resource impacts and general methodologies commonly used on proposed WisDOT transportation projects to define, identify, and determine potential impact(s) to the resource. Subsection 3 discusses any project-specific methodologies used to further refine the work completed as part of Subsection 2.

1.2 Project Background

The Federal Highway Administration (FHWA), in cooperation with the Wisconsin Department of Transportation (WisDOT), will prepare National Environmental Policy Act (NEPA) documentation and related corridor study-level analysis and studies for the IH 94, IH 894, and USH 45 corridor between the approximate limits of Lincoln Avenue at IH 894 and Burleigh Street at USH 45, and between 124th Street at IH 94 and 70th Street at IH 94 in Milwaukee County (See Section 1.3). The corridor study will cover the freeways and interchanges lying within these termini. This reconstruction project includes approximately seven miles of freeway corridor.

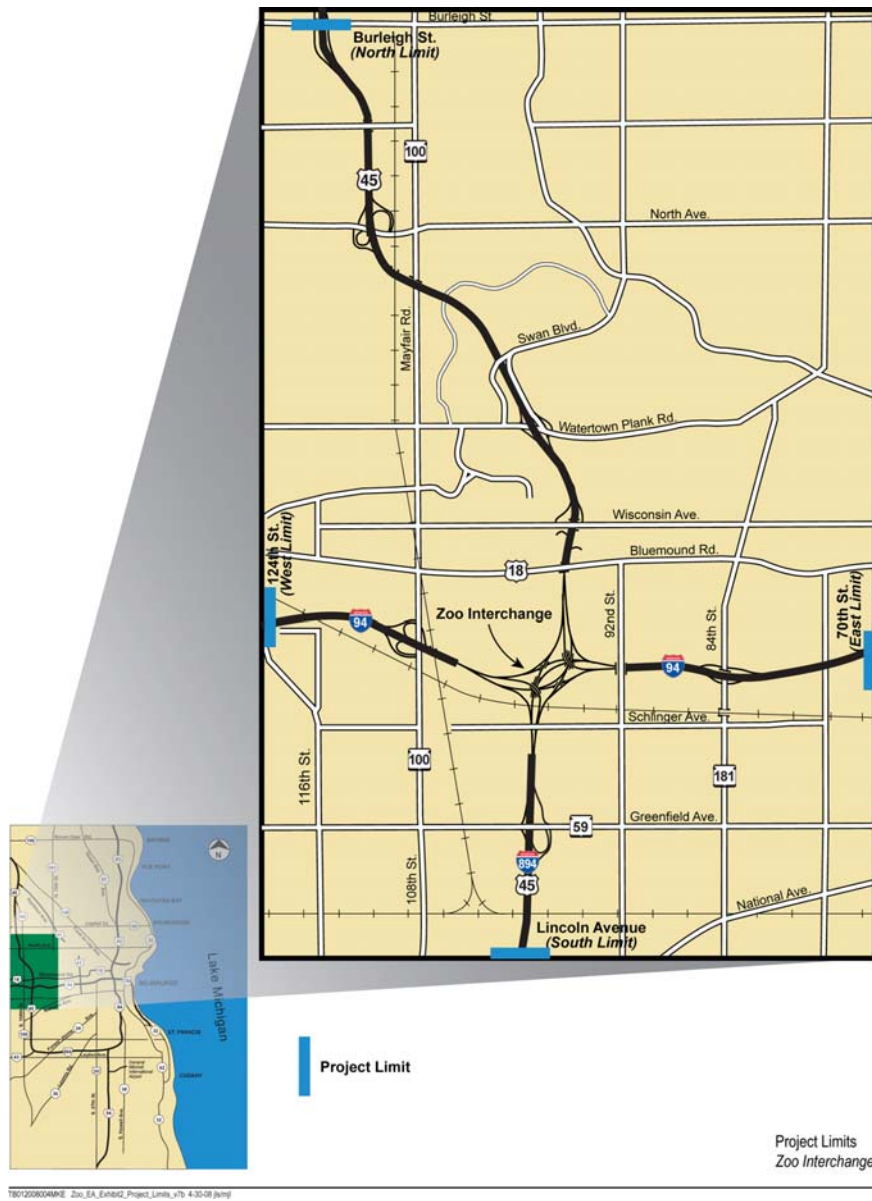
¹ The congressional Conference Report accompanying SAFETEA-LU states: "Collaboration means a cooperative and interactive process. It is not necessary for the lead agency to reach consensus with the participating agencies on these issues; the lead agency must work cooperatively with the participating agencies and consider their views, but the lead agency remains responsible for decision making."

FHWA's NEPA regulations (23 CFR 771) require that those federal agencies with jurisdiction by law (permitting or land transfer authority) be invited to be Cooperating Agencies for an EIS. SAFETEA-LU created a new Participating Agency category for the EIS process. Participating Agencies are federal and non-federal governmental agencies that may have an interest in the project because of their jurisdictional authority, special expertise and/or statewide interest.

² The methodology used by the lead agency must be consistent with any methodology established by statute or regulation under the authority of another federal agency.

The purpose of the proposed action is to address the study-area freeway system's deteriorated condition and obsolete design of the roadway and bridges and high crash rates in the project corridor. This project is located within the Southeastern Wisconsin Regional Planning Commission (SEWRPC) boundaries and is included in SEWRPC's *A Transportation Improvement Program for Southeastern Wisconsin: 2007-2010* as project number 27.

1.3 Project Vicinity Map



Section 2: General Economics Impact Methodology

2.1 Laws, Regulations and Guidelines

General economic impacts for transportation projects are evaluated in accordance with the following key regulations and guidance: FHWA's Technical Advisory 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (1987), and WisDOT's *Facilities Development Manual* Chapter 25, Socioeconomic Factors.

2.2 General Methodology

Evaluation of economic impacts includes cost estimates of the proposed action and its alternatives; applicable effects on economic development trends and viability; effects on employment opportunities; effects on highway-dependent businesses; effects on existing and planned business development; and effects on tax revenues. Economic impacts that can be quantified based on available data will be presented as such in the EIS and other impacts will be discussed qualitatively.

2.3 Project Specific Methodology

No additional project-specific methodology has been identified for this study.

Section 3: Business Impact Methodology

3.1 Laws, Regulations and Guidelines

Business impacts for transportation projects are evaluated in accordance with the following key regulations and guidance: The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended (49 CFR Part 24), and FHWA's Technical Advisory 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (1987).

3.2 General Methodology

Evaluation of business impacts includes an estimate of the number and types of businesses to be displaced, number of employees/jobs affected, any special characteristics, and availability of replacement business sites for those alternatives evaluated in detail in the EIS. Depending on the number and types of businesses displaced, a Conceptual Stage Relocation Plan may be prepared as part of the EIS. Impacts to businesses as a result of changes in access during and after construction are also evaluated.

3.3 Project Specific Methodology

No additional project-specific methodology has been identified for this study.

Section 4: Community and Residential Impact Methodology

4.1 Laws, Regulations and Guidelines

Community and residential impacts for transportation projects are evaluated in accordance with the following key regulations and guidance: The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended (49 CFR Part 24), FHWA's Technical Advisory 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (1987) and WisDOT's *Facilities Development Manual* Chapter 25, Socioeconomic Factors.

4.2 General Methodology

Evaluation of residential impacts includes an estimate of the number of homes to be displaced, including family characteristics; availability of comparable decent, safe, and sanitary housing in the area; any measures to be taken when replacement housing is insufficient; and identification of any special relocation needs. Depending on the number and types of homes displaced, a Conceptual Stage Relocation Plan may be prepared as part of the EIS. Impacts to homes as a result of changes in access during and after construction are also evaluated for those alternatives evaluated in detail in the EIS.

Evaluation of social impacts includes applicable changes in neighborhoods or community cohesion; changes in travel patterns and accessibility; impacts on community facilities; impacts on traffic safety/public safety; and impacts on any special groups such as elderly, handicapped, minority, and transit-dependent persons. Socioeconomic impacts that can be quantified based on available data will be presented as such in the EIS and other impacts will be discussed qualitatively. Impacts to designated bike routes and trails, pedestrians, and transit routes will be assessed.

4.3 Project Specific Methodology

No additional project-specific methodology has been identified for this study.

Section 5: Indirect Effects Methodology

5.1 Laws, Regulations and Guidelines

Indirect effects for transportation projects are evaluated in accordance with the following key regulation and guidance: the 2002 National Cooperative Highway Research Program (NCHRP) Report 466, *Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects* and the latest version of WisDOT's *Guidance for Conducting an Indirect Effects Analysis*. Indirect effects are defined as follows:

"Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems." (40 CFR 1508.8)

5.2 General Methodology

The indirect effects analysis uses a systematic approach that identifies the area of potential effect (APE) for indirect effects; analyzes the study area's goals and notable features (land use/development trends, demographics, natural resources); identifies impact-causing activities (actions that change travel patterns or alter access); qualitatively analyzes potential impacts of the proposed transportation action; and assesses the consequences of the effects. The process includes outreach to the communities along the corridor to assess the study area's land use and development patterns and to confirm the results of the analysis.

5.3 Project Specific Methodology

The timeframe for this analysis will correlate with the NEPA document. This timeframe is generally between 10 and 20 years, and much of the data available for use may be limited to this timeframe.

Section 6: Cumulative Effects Methodology

6.1 Laws, Regulations and Guidelines

Cumulative effects for transportation projects are evaluated in accordance with the following key regulations and guidance: The Council on Environmental Quality (CEQ) publication, *Considering Cumulative Effects under the National Environmental Policy Act*, January 1997, FHWA's position paper, *Secondary and Cumulative Impact Assessment in the Highway Development Process*, April 1992 and the latest version of WisDOT's *Guidance for Conducting a Cumulative Effects Analysis*. Cumulative effects are defined as follows:

"Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." (40 CFR 1508.7)

6.2 General Methodology

The cumulative effects analysis uses a qualitative approach that considers the combined direct and indirect effects of the proposed action and other reasonably foreseeable public and private activities within the geographic area established for evaluating cumulative effects. Steps in the cumulative effects analysis include identifying significant issues associated with proposed action, establishing the geographic area of influence, establishing the future time frame for analysis, identifying other actions affecting resources of concern, characterizing the resources in terms of response to change and stress, characterizing the stresses affecting the resources, defining a baseline condition for the resources, identifying important cause and effect relationships between human activities and the resources, determining the magnitude and significance of the cumulative effects, developing/modifying alternatives to avoid, minimize or mitigate significant cumulative effects to the extent practicable, and monitoring cumulative effects of the selected alternative and adapting management measures.

6.3 Project Specific Methodology

No additional project-specific methodology has been identified for this study.

Section 7: Environmental Justice Impact Methodology

7.1 Laws, Regulations and Guidelines

Environmental justice impacts for transportation projects are evaluated in accordance with the following key regulations and guidance: Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (1994), and the 1997 U.S. DOT Order on Environmental Justice (5680-1).

7.2 General Methodology

The proposed action and its alternatives are evaluated to determine whether there would be disproportionately high and adverse impacts on minority and low income populations with respect to human health and the environment. The analysis will be based on income and race information from the most recently available US Census. Additional information on race and income will be obtained from local agencies/organizations and through public involvement and community outreach activities. Potential impact categories include air, noise, or water pollution; increased vibration or traffic congestion; soil contamination; destruction of aesthetic value, disruption of community cohesion or economic vitality, disruption of cultural resources, changes in the availability of public and private facilities and services; adverse employment effects; and displacement of persons, businesses, farms, or nonprofit organizations.

7.3 Project Specific Methodology

The Environmental Justice analysis will include close coordination with public outreach efforts identified in this projects Public Involvement Plan. Information, results of analysis and feedback received from stakeholders will be documented and provided to the study team throughout the process. Outcomes of the public involvement outreach will be documented in the NEPA document.

Section 8: Historic Resources Impact Methodology

8.1 Laws, Regulations and Guidelines

Historic resource impacts for transportation projects are evaluated in accordance with the following key regulations and guidance: Section 106 of the National Historic Preservation Act as amended (16 USC 470), FHWA's Technical Advisory 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, 1987, and WisDOT's *Facilities Development Manual*, Chapter 26, Historical Preservation.

8.2 General Methodology

Impact evaluation includes identification of historic resources in the transportation project's area of potential effect by qualified archaeologists and historians, evaluation of the resources to determine potential eligibility to the National Register of Historic Places, assessment of effects to determine whether an adverse effect will occur, consultation with parties indicating an interest in the historic resources, and implementation of agreements reached to account for unavoidable adverse impacts.

A Section 106 Review form (DT1635) will be submitted to the State Historic Preservation Office (SHPO) for their concurrence, along with the Phase I historic and archaeological reports, as well as determinations of eligibility, if needed, attached to the review form. Upon WisDOT approval, the packet will then be submitted to the State Historic Preservation office (SHPO) for their concurrence. WisDOT will coordinate with all local historic societies in the study area, per 36 CFR 800.2. The extent of subsequent Section 106 documentation will be determined pending WisDOT, FHWA and SHPO review of the Section 106 review form.

8.3 Project Specific Methodology

It is assumed that the APE for historic resources will include the first tier of buildings adjacent to the study-area freeway system. If buildings in the first tier are relocated, then the APE will include the first tier of remaining buildings.

Section 9: Archaeological Resources Impact Methodology

9.1 Laws, Regulations and Guidelines

Archaeological impacts for transportation projects are evaluated in accordance with the following key regulations and guidance: Section 106 of the National Historic Preservation Act as amended (16 USC 470), FHWA's Technical Advisory 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, 1987, and WisDOT's *Facilities Development Manual*, Chapter 26, Historical Preservation.

9.2 General Methodology

Impact evaluation includes identification of archaeological resources in the transportation project's area of potential effect by qualified archaeologists and historians, evaluation of the resources to determine potential eligibility to the National Register of Historic Places, assessment of effects to determine whether an adverse effect will occur, consultation with parties indicating an interest in the archaeological resources, and implementation of agreements reached to account for unavoidable adverse impacts.

9.3 Project Specific Methodology

No additional project-specific methodology has been identified for this study.

Section 10: Section 4(f), 6(f) and Other Unique Lands Impact Methodology

10.1 Laws, Regulations and Guidelines

Public use land impacts (existing and planned public parks, recreation areas, wildlife and waterfowl refuges, other public-use lands and historic sites) for transportation projects are evaluated in accordance with the following key regulations and guidance: Section 4(f) of the U.S. DOT Act (23 USC 138; 49 USC 303), FHWA's Section 4(f) Policy Paper (2005), FHWA's Technical Advisory 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (1987), Section 6(f) of the Land & Water Conservation Fund Act as amended (16 USC 4601), the Federal Aid in Sport Fish Restoration Act (Dingell-Johnson Act) as amended (16 USC 777), the Pittman-Robertson Wildlife Restoration Act (16 USC 669), WisDOT's *Facilities Development Manual*, Chapters 20, 21, and 26, and other public use land funding programs such as those administered by DNR.

It should be noted that Section 4(f) of the U.S. DOT Act applies only to the actions of agencies within the U.S. Department of Transportation, including FHWA. While other agencies may have an interest in Section 4(f), FHWA is responsible for applicability determinations, evaluations, findings, and overall compliance.

10.2 General Methodology

The public use land impact evaluation includes an inventory of such resources in the transportation project's area of potential effect, a description of the resources including existing and planned use, funding sources, and jurisdictional agencies. The transportation improvements are located and designed to avoid or minimize impacts to public use land to the extent practicable. Where such resources cannot be avoided, impacts would be analyzed in terms of the amount of land required from the resource and any constructive use impacts such as increased traffic noise, changes in the visual setting, or other impacts that would adversely affect the intended use and enjoyment of the resource. WisDOT would coordinate with the jurisdictional agencies to obtain information on resource use, funding and management, and to obtain input on potential effects and possible mitigation measures.

10.3 Project Specific Methodology

The inventory of public use resources for evaluation under Section 4(f) may include the Hank Aaron State Trail and the West Allis Cross-town connector. However, while both trails have been planned, neither has been built in the Zoo Interchange Project corridor. No additional project-specific methodology has been identified for this study.

Section 11: Aesthetics Impact Methodology

11.1 Laws, Regulations and Guidelines

Aesthetic (visual) impacts for transportation projects are evaluated in accordance with the following key regulations and guidance: FHWA's Technical Advisory 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (1987), FHWA's publication on *Visual Impact Assessment for Highway Projects* (DOT FHWA-HI-88-054), and WisDOT's *Facilities Development Manual*, Chapter 27, Section 10, Visual Impact Assessment.

11.2 General Methodology

The visual impact assessment includes identifying the visual character of the project corridor, characterizing the visual quality of the viewshed, identifying and quantifying viewer groups to the extent practicable (those with a view of the highway and those with a view from the highway), describing the visual change that will occur because of the proposed transportation improvements, qualitatively characterizing the change (low, moderate, high), and developing reasonable measures to mitigate adverse visual effects where a sensitive visual impact has been identified. Mitigation measures could include landscaping and aesthetic treatments on roadway components such as retaining wall, bridge abutments, and sidewalks.

11.3 Project Specific Methodology

WisDOT will form a committee to evaluate Community Sensitive Solutions options in the Zoo Interchange project corridor.

Section 12: Wetlands Impact Methodology

12.1 Laws, Regulations and Guidelines

Wetland impacts and mitigation for transportation projects are evaluated in accordance with the following key regulations and guidance: Section 404 of the Clean Water Act as amended (33 USC 1251-1376), Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material (40 CFR Part 230) as amended in March 2008, Executive Order 11990, Protection of Wetlands (42 FR 26961), DOT Executive Order 5660.1A, Preservation of the Nation's Wetlands, Fish and Wildlife Coordination Act as amended (16 USC 661-667), FHWA's policy and procedures for evaluation and mitigation of adverse environmental impacts to wetland and natural habitat (23 CFR 777), FHWA's Technical Advisory 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (1987), WisDOT's *Facilities Development Manual*, Chapter 24, Section 5, Aquatic Systems, the WisDOT Wetland Mitigation Banking Technical Guideline as amended, Wisconsin Administrative Code Chapter NR 103, Water Quality Standards for Wetlands, SEWRPC's *A Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin* (September 1997), and the WisDOT/DNR Cooperative Agreement Amendment on Compensatory Mitigation for Unavoidable Wetland Losses Resulting from State Transportation Activities (2001).

12.2 General Methodology

Depending on the type of transportation improvements being proposed, the construction time period, and the extent of wetland resources in the project's area of potential effect, preliminary wetland boundaries are established using existing information such as the Wisconsin Wetland Inventory maps produced by the Wisconsin DNR, farmed wetland maps produced by the USDA Natural Resources Conservation Service, statewide, regional or local GIS data, and field inspection. If greater precision is required, detailed wetland boundary determinations or delineations would be conducted in accordance with the interagency *Federal Manual for Identifying and Delineating Jurisdictional Wetlands*.

Wetlands designated by resource agencies as Advanced Identification (ADID) wetlands in accordance with the Section 404(b)(1) guidelines, and wetlands in areas of special natural resource interest in accordance with Wisconsin Administrative Code Chapter NR 103 (Section 103.4) will be identified. These wetlands are considered generally unsuitable for disposal of dredged or fill material. Avoidance and minimization of ADID wetlands is given strong consideration because of their critical functions and geographic position in the landscape. In Southeastern Wisconsin, ADID wetlands include those located in primary environmental corridors as identified in regional plans or others as identified by the Environmental Protection Agency. Wetlands in areas of special natural resource interest include those associated with cold water communities, wetlands located in designated state natural areas, and wetlands with special protection status such as calcareous fens. If ADID wetlands are affected, the EIS will include a thorough and dedicated discussion of any impacts to ADID wetlands, and WisDOT and FHWA would coordinate with the WDNR, EPA and the Corps on any ADID wetland issues. Transportation improvement alternatives are developed to reduce wetland impacts to the extent practicable through a sequence of avoiding wetlands where possible, minimizing impacts to wetlands that cannot be avoided, and mitigating unavoidable wetland loss through various compensation measures as specified in WisDOT's Wetland Mitigation Banking Technical Guideline. Wetland compensation includes evaluation of on-/near-site replacement wetlands, and use of an established wetland mitigation bank when on-/near-site replacement wetlands are

not feasible or practicable. All unavoidable wetland loss would be fully compensated in terms of amount affected, type, and functional values.

12.3 Project Specific Methodology

There are very few wetlands located in the study corridor. It is assumed the project's wetland impacts, if any, will be mitigated at an existing wetland bank. Additionally, it appears no ADID wetlands will be affected by the project.

Section 13: Water Resources/Floodplains/Storm Water Impact Methodology

13.1 Laws, Regulations and Guidelines

Water resource and floodplain impacts for transportation projects are evaluated in accordance with the following key regulations and guidance: The Clean Water Act as amended (33 USC 1251-1376) including Section 303(d) which requires states to periodically submit to EPA for approval a list of impaired waters that do not meet water quality standards established by the state, Executive Order 11988, Floodplain Management (42 FR 26951), DOT Executive Order 5650.2, Floodplain Management and Protection; Policies and Procedures (23 CFR 650), FHWA's Technical Advisory 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (1987), WisDOT's *Facilities Development Manual*, Chapter 24, Land and Water Resources Impacts and FDM Chapter 10, Erosion Control, Wisconsin Administrative Code Chapter NR 116, Wisconsin's Floodplain Management Program, the WisDOT/DNR Cooperative Agreement Amendment, Memorandum of Understanding on Erosion Control and Storm Water Management (1994), and Wisconsin Administrative Code Chapter TRANS 401, Construction Site Erosion Control and Storm Water Management Procedures for Department Actions.

13.2 General Methodology

Transportation improvement alternatives involving stream crossings and floodplains are developed to minimize impacts to water quality, floodplain values and stream hydraulics to the extent practicable through use of sound erosion control and storm water management practices, and by sizing new and replacement structures to minimize floodplain encroachment and increases in the height of the regional (100-year) floodplain elevation.

Impact evaluation includes assessment of existing conditions such as water quality, fishery resources, floodplain functions and values, potential adverse effects to these conditions, and proposed measures to minimize the adverse effects. Waters designated as impaired under Section 303(d) of the Clean Water Act will be identified using the latest impaired waters list prepared by DNR and approved by EPA.

The extent to which erosion control and storm water management measures are proposed in the EIS depends on the type of transportation improvements being proposed, the construction time frame, and the extent of water and floodplain resources in the project's area of potential effect. A planning level project generally includes conceptual best management practices. Other projects may require more specific erosion control and storm water management commitments.

13.3 Project Specific Methodology

A drainage and storm water management study will be developed during preliminary design after the NEPA process has been completed. During the NEPA phase, WisDOT and FHWA will assess the use and preliminary location of detention ponds or other methods to manage run-off from the extra impervious area created by reconfiguring the Zoo Interchange.

Information obtained will include such items as: mapped floodplain information from the Federal Emergency Management Agency (FEMA); watershed studies from Southeast Wisconsin Regional Planning Commission (SEWRPC) and the Milwaukee Metropolitan Sewerage District (MMSD); WisDOT storm water drainage system mapping; mapping of soils, topography and wetlands; maps of existing storm sewers and culverts; existing hydraulic models for waterway crossings; and existing bridge structural and hydraulic reports. Also, a summary report of storm water design criteria will be developed to guide decisions and future design efforts.

Section 14: Upland Habitat Impact Methodology

14.1 Laws, Regulations and Guidelines

Upland habitat impacts for transportation projects are evaluated in accordance with the following key regulations and guidance: The Fish and Wildlife Coordination Act as amended (16 USC 661-667), FHWA's Technical Advisory 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (1987), WisDOT's *Facilities Development Manual*, Chapter 24, Land and Water Resource Impacts, FHWA's Guidelines for Consideration of Highway Project Impacts on Fish and Wildlife Resources (October 1989), SEWRPC's *A Regional Land Use Plan for Southeastern Wisconsin: 2035* (June 2006), and any state, regional or local plans that provide specific information on upland habitat such as designated environmental corridors, natural areas, and wildlife habitat ranking.

14.2 General Methodology

Upland habitat includes nonwetland areas in the transportation project's area of potential effect that have vegetative cover suitable for supporting wildlife. Such areas include woodlands/shrub thickets, fallow fields, fence lines, and remnant prairies dominated by grasses and forbs. WisDOT coordinates with DNR, other agencies, and regional planning commissions as appropriate to obtain information on the quality and classification of wildlife habitat in the project's area of potential effect.

Impact evaluation includes an assessment of existing conditions (community type, connectivity to other resources, wildlife associations), amount and type of habitat affected by the proposed project, fragmentation or severance of ecosystems, and consequential effects on wildlife permanently inhabiting or passing through the upland habitat areas. At this time, FHWA does not have a policy for mitigating upland habitat impacts. It is FHWA's position that normal practices such as providing appropriate management of land within the highway right-of-way, using location, design and construction techniques to minimize habitat impacts, and possible acquisition of wider rights-of-way will adequately mitigate the loss of upland wildlife habitat.

14.3 Project Specific Methodology

No additional project-specific methodology has been identified for this study.

Section 15: Threatened and Endangered Impact Methodology

15.1 Laws, Regulations and Guidelines

Threatened and endangered species impacts for transportation projects are evaluated in accordance with the following key regulations and guidance: The Endangered Species Act of 1973 (7 USC 136; 16 USC 1531), the Migratory Bird Treaty Act (16 USC 661), FHWA's Technical Advisory 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (1987), FHWA's guidance memorandum, Management of the Endangered Species Act Environmental Analysis and Consultation Process (2002), Wisconsin Administrative Code Chapter NR 27, Endangered and Threatened Species (2005), the WisDOT/DNR Cooperative Agreement Amendment, Memorandum of Understanding on Endangered and Threatened Species Consultation (1998), and the WisDOT *Facilities Development Manual*, Chapter 24, Land and Water Resources.

15.2 General Methodology

The threatened and endangered species impact evaluation includes a determination of the presence or absence of any federal- or state-listed threatened or endangered species or their critical habitat in the transportation project's area of potential effect. The presence or absence determination is made in consultation with DNR and the U.S. Fish and Wildlife Service and may include field inventories by qualified resource biologists.

If threatened and endangered species or their critical habitat is present and cannot be avoided by location and design refinements to the proposed transportation project, WisDOT would proceed with consultation steps under the Endangered Species Act for federal-listed species. For state-listed species, WisDOT would develop a conservation plan or lay the groundwork for an incidental take permit in consultation with DNR.

15.3 Project Specific Methodology

A Butler's garter snake survey is assumed to be required for all Tier 3 Butler's garter snake habitat in the corridor.

Section 16: Air Quality Impact Methodology

16.1 Laws, Regulations and Guidelines

Air quality impacts for transportation projects are evaluated in accordance with the following key regulations and guidance: The Clean Air Act as amended (42 USC 7401), FHWA's Technical Advisory 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (1987), FHWA air quality conformance guidance (23 CFR 450), FHWA interim guidance on analyzing Mobile Source Air Toxics (February 2006), Wisconsin's State Implementation Plan, and Wisconsin Administrative Code Chapter NR 411, Construction and Operation Permits for Indirect Sources.

16.2 General Methodology

The Environmental Protection Agency (EPA) has set national air quality standards for six principal air pollutants (also referred to as criteria pollutants): carbon monoxide (CO), lead, nitrogen dioxide (NO₂), ozone, particulate matter and sulfur dioxide. Transportation contributes to CO, NO₂, ozone and particulate matter. Air quality impacts for transportation projects are evaluated in view of these criteria pollutants using established air quality assessment techniques.

FHWA developed interim guidance in 2006, titled "FHWA's Interim Guidance on Air Toxics Analysis in NEPA Documents", on when and how to analyze Mobile Source Air Toxics (MSAT) since MSAT science continues to evolve. According to that guidance, any project exceeding the 150,000 Annual Average Daily Traffic (AADT) traffic volume in the design year (2035) is categorized as a "project with higher potential MSAT effects" and thus would require a quantitative MSAT analysis. The six priority MSATs (benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein and 1, 3-butadiene) identified by EPA will be evaluated. Inputs from the MOBILE6.2 model, such as traffic volumes, traffic speed and number of lanes, will be inserted in another computer model, called the EMIT model, which provides MSAT emission levels. The output of the EMIT model results in tons of MSAT emissions emitted annually for the project alternatives. As noted, MSAT science continues to evolve. Presently, it is difficult to accurately predict MSAT levels and even if they could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude reaching meaningful conclusions regarding project-specific health impacts. Meaningful exposure assessments are currently impossible because it is difficult to accurately calculate annual concentrations of MSATs near roadways and to determine the portion of the year people are actually exposed to those concentrations at a specific location.

16.3 Project Specific Methodology

As part of the Zoo Interchange/USH 45 corridor project, WisDOT will assess three distinct types (ozone, carbon monoxide, and mobile source air toxics) of traffic-related air quality issues. Each distinct air pollutant will be analyzed using the appropriate analysis tool and the results will be recorded in the project's NEPA document. In accordance with the MSAT guidance, a quantitative MSAT analysis will be conducted for this study.

As a result of the non-attainment status for ozone, any regional transportation project must be included in an approved Transportation Improvement Program (TIP) as well as the regional transportation system plan. Since the Zoo interchange/USH 45 corridor project is included in the Regional Transportation System Plan for Southeastern Wisconsin and in an approved TIP, the project is considered in conformance with regional ozone air quality requirements.

A project-specific carbon monoxide (CO) analysis using approved computer models will be conducted. The computer modeling takes into account such factors as number of vehicles, vehicle types, and speed of vehicles to determine CO levels. It is assumed that if the CO level at the worst-case location falls below the 75% National Ambient Air Quality Standards (NAAQS) threshold, the remainder of the corridor will also fall below this level. Per NR 411, a construction permit is needed if CO levels are greater than 75% (but less than 100%) of NAAQS.

Section 17: Traffic Noise Impact Methodology

17.1 Laws, Regulations and Guidelines

Highway noise impacts are evaluated in accordance with the following key regulations and guidance: FHWA's Technical Advisory 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (1987), FHWA's Federal Aid Policy Guide, Procedures for Abatement of Highway Traffic Noise and Construction Noise (23 CFR 772), and Wisconsin Administrative Code Chapter TRANS 405, Siting Noise Barriers.

17.2 General Methodology

Transportation projects are evaluated for traffic noise impacts and abatement measures to help protect the public health and welfare, to supply noise abatement criteria, and to provide information to local officials for land use planning near highways. The noise analysis also provides information on noise generated from typical construction equipment during the construction period.

Existing and design year traffic noise levels are modeled at residential, commercial, and other sensitive receptors along the project corridor using FHWA's Traffic Noise Prediction Model (TNM)[®] 2.5 computer program. The TNM includes traffic characteristics that yield the greatest hourly traffic noise on a regular basis for existing conditions and the future design year. Under TRANS 405, noise impacts will be evaluated further to determine the reasonableness and feasibility of potential mitigation measures such as noise walls or berms. If noise mitigation is reasonable under TRANS 405 criteria, additional public involvement related to noise mitigation would be initiated.

17.3 Project Specific Methodology

No additional project-specific methodology has been identified for this study.

Section 18: Contaminated Sites Impact Methodology

18.1 Laws, Regulations and Guidelines

The impacts of potential hazardous materials/environmental contaminants for transportation projects are evaluated in accordance with the following key regulations and guidance: The Resource Conservation and Recover Act of 1976 as amended (42 USC 6901), FHWA's Technical Advisory 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (1987), WisDOT's *Facilities Development Manual*, Chapter 21, Section 35, Contaminated Site Assessments and Remediation, EPA's Asbestos/NESHAP Regulated Asbestos Containing Materials Guidance, WisDOT's *Standard Specifications for Highway and Structure Construction*, WisDOT's *Construction and Materials Manual*, Chapter 5, Section 40, Subject 40, and Wisconsin Administrative Code Chapter NR 447.

18.2 General Methodology

The hazardous materials impact evaluation includes a Phase 1 investigation (field observations, records search and interviews) to identify sites with a likelihood of contamination. If there is possible contamination in the project's area of potential effect, a Phase 2 investigation (subsurface testing) is conducted to determine if environmental contamination is actually present and the type of contamination. If contamination is present, a Phase 2.5 investigation (additional subsurface testing) is done to determine the source and extent of the contamination. If contaminated sites cannot be avoided by project design refinements, the evaluation proceeds to Phase 3, development of a remediation plan and Phase 4, site remediation. This process is completed separate from the NEPA process.

WisDOT also evaluates highway structures that need to be replaced or rehabilitated as part of a proposed transportation improvement to determine whether any asbestos materials were used in the construction, renovation or rehabilitation of the structures. Representative samples of suspect materials are collected by a licensed asbestos inspector following standard protocols and procedures and submitted for laboratory testing. Asbestos materials will be disposed of in accordance with appropriate hazardous waste disposal regulations and guidelines. WisDOT also evaluates any highway structures that need to be replaced or rehabilitated as part of a proposed transportation improvement to determine whether any lead paint was used in the construction, renovation or rehabilitation of the structures. Any lead paint found will be disposed of in accordance with appropriate hazardous waste disposal regulations and guidelines.

Any additional non-highway structures that need to be removed will be evaluated for the presence of asbestos and lead paint. These materials will be disposed of in accordance with appropriate hazardous waste disposal regulations and guidelines.

18.3 Project Specific Methodology

The previously completed Preliminary Phase 1 Hazardous Materials Assessment of the study area freeway system will be reviewed and updated. The preparation of the final Phase 1 report will list the parcels recommended for additional hazardous materials activities (Phase 2). Contaminated sediment at water crossings will also be noted as a potential contaminant in the study area.

Section 19: Construction Impact Methodology

19.1 Laws, Regulations and Guidelines

Construction impacts will be evaluated in accordance with FHWA's Technical Advisory 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (October 1987).

19.2 General Methodology

The project's construction impacts and the conceptual plan for maintaining traffic during construction are evaluated. The following construction impacts may be assessed and mitigation measures developed as required:

- access to facilities and services
- economic impacts
- noise
- water quality/erosion and sedimentation
- construction solid and hazardous waste
- vibration
- air quality (emissions and fugitive dust)
- traffic

FHWA's transportation management plan for work zones provides for systematic consideration and management of work zone impacts and safety in all project development phases.

Preliminary information is developed in the planning phase with input from the public, local officials and other interests, and developed further in subsequent engineering design phases.

19.3 Project Specific Methodology

WisDOT and FHWA are working with the Wisconsin DNR on potential Hank Aaron State Trail alternative routes during Zoo Interchange construction.